Shropshire Botanical Society

Newsletter

Spring 2016

Shropshire Botanical Society Newsletter No. 32

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Past copies of the newsletter are available as pdfs from the Shropshire Botanical Society website: : http://www.shropshireecology.co.uk/botanical_society.html

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Front Cover photo; *Tussilago farfara*, Colt's-foot beside White Mere, March 2015, (photo by Mags Cousins)

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Our thanks to the Shropshire Wildlife Trust and the Field Studies Council for their generous support of our society. Both organisations support the work of the society in recognition of the importance of the contribution we make to understanding Shropshire botany.

Society News

Mags Cousins

First and foremost many thanks to Gordon Leel for the refreshing new look of this edition of the newsletter. He has taken on the design and layout which was long overdue. Ideas for articles and copy can still come to me in the first instance if there is anything you would like included.

We are also very grateful to Peta Sams who has joined the committee as Membership Officer full of energy and ideas. We'd like to keep in touch with members more and let you know about meetings and other events (and reminders about renewals!). So to make sure records are up to date would all members who like to be contacted electronically please send an email to shropbotsoc@gmail.com so that we can check we have the right address. We have a Data Protection Policy which covers the way we keep members' details safe which you are welcome to see.

Please note new Website address: http://www.shropshireecology.co.uk/botanical_society.html

Spring Meeting

Spring Meeting 2-4pm, Saturday 9th April 2016, at our usual venue Preston Montford Field Studies Centre, Montford Bridge, Shrewsbury, SY4 1DX. Our very own Prof Ian Trueman will give a talk on "Changes in the Shropshire Flora since Sinker".

Winter Meeting 2-4pm, Saturday 10th December 2016, venue as above, speaker to be confirmed.

A celebration of biological recording in July 2016

National Forum for Biological Recording, Manchester Metropolitan University and the Field Studies Council are organising an event to celebrate the 30th anniversary of NFBR and the 20th anniversary of the FSC and MMU's Biological Recording courses. It will be held at Preston Montford FSC on the 22nd-24th July 2016. There will be a choice of field meetings to diverse local sites throughout the weekend and an after dinner speaker on Saturday. http://www.nfbr.org.uk/website2015/?q=node/148

BSBI in Shropshire in September 2016

The Botanical Society for Britain and Ireland (BSBI) host their Recorders' Conference in Shropshire on the 2nd-4th September. It is attended by about 80 county recorders, referees and officers of the society, along with any other botanists who want to come – including yourselves. There are talks, workshops and field meetings and it takes place at The Gateway Arts & Education Centre (Manchester Metropolitan University). Accommodation, evening workshops and field events are hosted at Preston Montford Field Centre, http://www.bsbi.org.uk/recorders_conference.html

Botany and Related Courses at the Gateway, run by Manchester Metropolitan University

Botany for Improvers Wed 11th May, tutor Mark Duffell

Crucifer ID, Wed 8th June, tutor Tim Rich

Fern ID, Wed 20th July, tutor Sarah Whild

Alien Flora, Wed 3rd August, tutor Mark Duffell

British Amaranthaceae, Tues 23rd August, tutor Ros Bennett

Identification of Fruits, Wed 24th August, tutor Ros Bennett

The Juncaceae: Rushes and Woodrushes, Wed 31st August, tutor Mark Duffell

Using the Vegetative Key to the British Flora, Wed 7th September, tutor Mark Duffell

Wildlife in the Cloud, Wed 12th October, tutor Martin Harvey

Heathland Bryophytes, Wed 9th November, tutor Martin Godfrey

For more information and booking http://www.sste.mmu.ac.uk/recording/

Cole Mere SSSI – a site profile

Mags Cousins

Cole Mere SSSI is one of Shropshire's top ten targets for nature conservation with more than 50 axiophytes; supporting England's last population of *Nuphar pumila* Least Water-Lily, a glacial relic and being Shropshire's only naturally occurring location for *Cirsium dissectum* Meadow Thistle.

Axiophytes

Plotting the number of axiophytes over the decades (see Table 1 below) shows a rather inconsistent pattern which is probably largely due to variation in recording effort, despite being a highly studied and frequently visited site. There is no obvious decline compared to other sites, and the tally for 2010-2020 is likely to increase as more records come in.

Decade	No. axiophytes
1800	47
1900	12
1960	25
1970	19
1980	15
1990	33
2000	54
2010	23

Table 1. No. of axiophytes at Cole Mere by decade (Lockton, 2015)

These axiophytes are found in the various different NVC community types, especially the W5 *Alnus glutinosa-Carex paniculata* woodland, the MG5 *Cynosurus cristatus-Centaurea nigra* grassland, the M23 *Juncus effusus/acutiflorus – Galium palustre* rush pasture, the M24 *Molinia caerulea-Cirsium dissectum* fen meadow and in the open water and emergent zone of the lake itself.

Looking just at the aquatic macrophytes it is apparent that before the late 1800's Cole Mere supported a more oligo-mesotrophic flora than the present day species of more nutrient rich (eutrophic) lake conditions, many of which appeared post 1945, see Table 2. below. This led Natural England to condition assess Cole Mere lake on the type and condition it would have been prior to significant anthropogenic influence which has caused the rise in nutrient status and on that basis it is currently failing. In contrast the Environment Agency's Water Framework desk top review (EA, 2012) states that whilst overall the waterbody was in poor condition, the aquatic macrophytes are good, presumably because the EA make no distinction between oligotrophic and eutrophic aquatic macrophyte indicators.

Hydrochemistry

In order to reflect the previously more mesotrophic conditions, the Total Phosphorus target for the lake has been set at <15µg/litre TP, as above this concentration there is a change in aquatic flora to those more tolerant of higher nutrient status. Cole Mere is currently failing this target (see Fig. 1), although levels of P are lower than they were in the 1990's. Even if catchment sources are reduced to an acceptable level it will take a long time for Phosphorus levels in the water column to fall sufficiently, either by being flushed out of the lake or buried in the sediment. Engineering solutions have been tried in the UK and abroad for lake restoration by removing Phosphorus rich sediment, all of which are expensive and often of only short term benefit especially if nutrients are still incoming from the catchment.

The lake is classified as Nitrogen limited, in that there is plenty (an excess!) of Phosphorus for plant growth, so it is when more Nitrogen comes into the lake (surface, groundwater and/or atmospheric deposition) there will be an increase in plant growth. This is witnessed at Cole Mere in the regular algal blooms, which occur when the water is warm enough. The appearance and increase of *Phragmites australis* Common Reed in the last 20 years or so, particularly where surface water drains enter the mere may be an indication of a different water chemistry and nutrient status attributable to the inflows. *Phragmites australis* has an Ellenberg value of 7 indicating a plant of richly fertile places on a scale where (1) is nutrient poor and (9) is extremely nutrient rich such as a cattle resting place. These drains will be carrying diffuse pollutants from various sources in the catchment, such as agricultural runoff, boat traffic on the canal, road

Aquatic macrophyte, first – last record date	Oligo-mesotrophic *Littorelletea uniflorae* and/or *Iseoto-Nanojuncetea* type vegetation	Hard oligo-mesotrophic waters with Chara spp.	Eutrophic *Magnopotamion* or *Hydrocharition* type vegetation
Nuphar pumila, 1854 - 2016	✓		
Eleocharis acicularis, 1800 - 1842	✓		
Myriophyllum alterniflorum, 1836 - 1842	✓		
Baldellia ranunculoides, 1836 - 1880	✓		
Potamogeton gramineus, 1831- 1836	✓		
Littorella uniflora, 1800 - 1892	✓		
Menyanthes trifoliata, 1840 - 1882	✓		
*Chara aspera,*1840		✓	✓
Chara globularis, 2004			✓
Chara vulgaris, 2005- 2015			✓
Carex rostrata, 1840 - 1880	✓		
Potamogeton berchtoldii, 1979 - 2004	✓		✓
Nymphaea alba, 1946 - 1979	✓		✓
Persicaria amphibia, 1963 - 2007	✓		
Nuphar lutea, 1963 - 2015	✓		✓
Potamogeton freisii, 1831			✓
Potamogeton obtusifolius, 2007			✓
Potamogeton pectinatus, 1963 - 2012			✓
Potamogeton crispus , 1979 - 2012			✓
Ranunculu circinatus , 1979 - 2012			✓
Callitriche spp., 1963 - 2012			✓
Zannichellia palustris, 1979 - 2012			✓
Lemna spp.,1979 - 2012			✓

Table 2. Cole Mere Aquatic Macrophytes Characteristic of Lake Types (note these are not necessarily Shropshire axiophytes) from Natural England Common Standards Monitoring Guidance, 2005 and 2015 combined.

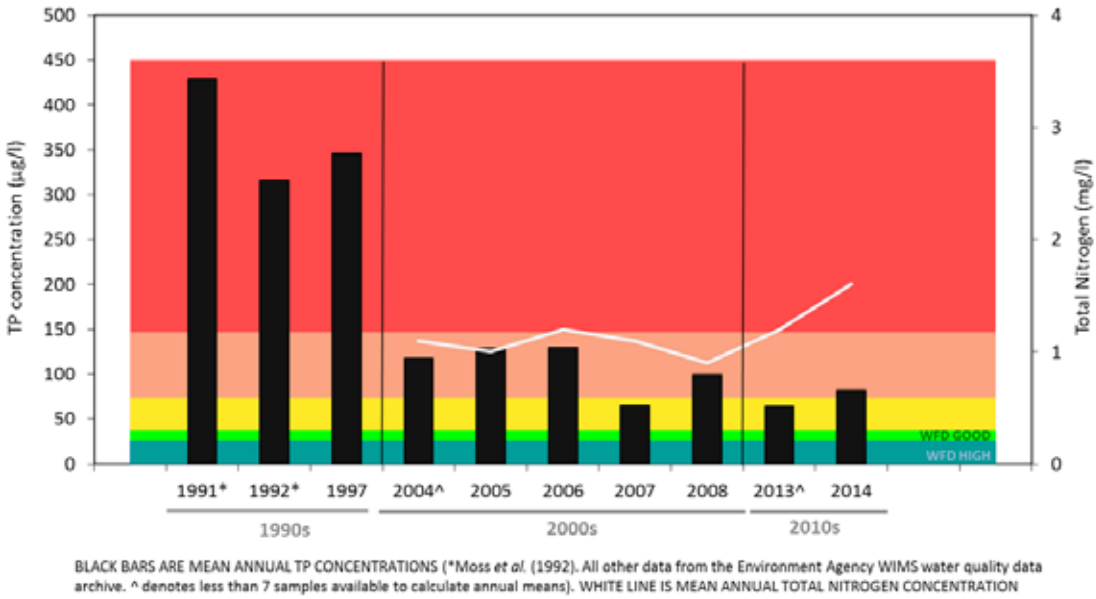


Fig 1. Cole Mere SSSI Water quality 1991-2014, Total Phosphorus and Total Nitrogen with background generic Water Framework Directive target levels (NB these are less stringent than Natural England targets at this site)

drains and domestic septic tanks. The water quality of these inflows is being monitored at the moment by Natural England (May 2015-April 2016) to get an idea how much still needs to be done for reducing catchment surface water inputs of nutrients. Models show that shallow groundwater (via the permeable glacial drift) also contributes to the water balance of the mere (Atkins, 2015) but the contribution of water and nutrients via this pathway is much harder to measure. However it is promising to note that a nearby local borehole shows a falling trend in N Oxidised (mg/litre) since 2003.

Hydrology

The natural hydrology of Cole Mere has been significantly interfered with over the centuries, not least the dissection of the peat basin by the construction of the canal and the creation, or at least deepening and canalisation, of the main outlet. Cole Mere was severed from other good wetlands to the north such as Black Coppice, another example of M24 *Molinia caerulea-Cirsium dissectum* fen meadow, and despite lacking *Cirsium dissectum* is considered worthy of inclusion in the SSSI. The only link between the two is now a drain which passes under the canal to the mere.

Natural England installed water level auto data loggers in the mere and the contiguous Yell Meadow to the east in 2014 and it was a slight surprise to learn that the water table in this meadow was not entirely determined by mere water levels but seemed to have its own mini catchment. A big cause for concern on the integrity of the Yell Meadow M23 and M24 communities was a very big drop of 60cm plus in soil water levels during dry periods, beyond the tolerance range of the important NVC communities which could have a long term effect on the vegetation. A drain from the meadow was discovered and blocked and this winter, trees cleared and debris dams put into Cole Mere outlet ditch to bolster soil moisture levels in the meadow. Subsequent monitoring of the baseline vegetation quadrats taken prior to this water level raising will help ascertain the effect this has on the low lying areas of the meadow. The damper hollows in the M23 rush pasture, which currently have abundant *Carex nigra*, *Equisetum fluviatile* and in places *Comarum palustre* may well become more 'swamp like'. The transition between M23 where it grades into MG5 hay meadow community may retreat

Fig.2. *Cirsium dissectum* Meadow Thistle on gentle slope at Cole Mere, June 2015

'upslope'. These are acceptable changes in relative extent of the communities but a retraction in the extent of the *Cirsium dissectum* would be highly undesirable. This is found in only one discrete patch on a gentle slope, Fig. 2.

Mapping the extent of the sedge rich area of the W5 *Alnus glutinosa-Carex paniculata* woodland and taking peat cores along a hydrological gradient from dry woodland to the mere and then relating this to mere water levels confirmed what the vegetation was telling us. When the mere reaches the maximum water level that is currently possible, through build up of debris on the old outlet structure during winter see Fig. 3, the extent of surface water into the wet woodland corresponded almost exactly to the extent of *Carex remota* Remote Sedge (Fig 4.); who needs expensive levelling surveys! Beyond this the peat very rapidly tailed off to a shallow organic layer of soil. The best areas of *Carex elongata* Elongated Sedge were on the wettest deepest peat (1.7-3.8m deep).

At the beginning of each February Cole Mere Sailing Club remove any debris that builds up over winter in order to enable them to store and use their rescue boat safely at the Boathouse during the summer sailing season. Some winters though, the debris may not build up and the surface water may

Fig 3. The old outlet structure at Cole Mere blocked with debris, January 2015.

Fig 4. Extent of surface water and *Carex remota* in the woodland, January 2015.

Fig 5. Sward poached by walkers at the end of the boardwalk in Yell Meadow, January 2015

not extend into the woodland. The imperative of making sure this inundation did actually happen to saturate the peat and support the W5 community was evident.

Natural England and Shropshire Council are currently trialling means of mimicking the previously serendipitous winter blockage. Luckily it looks like we will soon have a simple low cost method of utilising the old outlet structure to ensure winter saturation, safe summer sailing and the possibility of further drawdown to the lowest sill level of the structure. In dry periods the mere does sometimes shrink to below the engineered sill level giving ample opportunity for specialist species of the drawdown zone but sadly *Littorella uniflora* Shoreweed has not yet reappeared which is probably more related to water quality than opportunity at this site.

Aside from water quality and limitations on the natural hydrological functioning of the wetland, other threats to the site remain considerable, such as invasive alien species with *Crassula helmsii* New Zealand Pygmyweed on the doorstep at Newton Mere and *Dikerogammarus haemobaphes* Demon Shrimp rapidly advancing along the canal network; ever increasing recreational pressure damaging vegetation (see Fig. 5) and disturbing nesting birds; too many of the wrong kind of birds eg Canada geese causing eutrophication; difficulties of hay making and cattle grazing the meadows to keep these in good condition; development pressures such as proposed expansion of sand and gravel quarrying within the catchment and the vulnerability of *Nuphar pumila* to extinction. Shading has been reduced on the remaining colonies of *N.pumila* which appear to have responded well and loose rhizomes (uprooted by swimming dogs, large carp and/or geese) have been collected up from the strandline and are currently been propagated in 'captivity'. If successful there will be trial reintroductions back to the site. Ultimately it would be a good back up measure to have sustainable colonies elsewhere in case of die back at Cole Mere and a study is planned to assess the feasibility of this.

Acknowledgements

Many thanks to the Environment Agency for provision of water quality data, Dave Gasca-Tucker Atkins for assistance with hydrological analysis, Cole Mere Sailing Club for engagement with the project to ensure peat saturation in the woodlands, Shropshire Council for carrying out the works on the outlet ditch, and all the recorders who have provided botanical data over the years.

Bibliography

Atkins, 2015 Cole Mere Hydrology Study, report commissioned by Natural England, July 2015.

Environment Agency, 2012 Water Framework Directive Waterbody Review, Vicky Howden, December 2012.

Lockton, A. and Whild, S., 2006 A Botanical Survey of Cole Mere, report commissioned by Natural England, January 2006.

Natural England, 2015 Common Standards Monitoring Guidance for Freshwater Lakes March 2015, JNCC, ISSN 1743-8160.

Rodwell, J.S. (ed.), 1991 British Plant Communities Volumes 1 (Woodlands and scrub), 2 (Mires and heaths) and 3 (Grassland and montane communities) for the JNCC, Cambridge University Press.

SEDN database – Shropshire Ecological Data Network on line database of plant records http://shropsbotdata.org.uk/

Devil's Dingle Ash Disposal Site, Buildwas, Shropshire

Mary Thornton

The 40 ha of Devil's Dingle was acquired by the Central Electricity Generating Board in 1968 for the disposal of pulverised fuel ash (PFA) from the burning of coal at its nearby Ironbridge Power Station. PFA disposal proceeded in two phases. The first involved the direct deposition of PFA which was then top-soiled and landscaped. The second phase was much larger and involved the construction of a dam wall with an artificial lagoon behind where PFA was deposited as slurry via a pipeline and excess water decanted back to the River Severn. Deposition of PFA ceased in 2009.

Restoration landscaping has created three pools and various mounds in place of the single lagoon. Pool and mound creation was mainly motivated by a desire to reduce the risk level of the site under the Reservoir's Act 1973 and break up the horizontal line of the dam crest in the landscape. However, the creation of a number of smaller pools with a longer total length of shoreline and mounds with different aspects also created a range of places for plants and animals to colonise.

Records of early seeding and planting at the Dingle are anecdotal or have been lost in the mists of time. Parts of the dam face appear to have been seeded with a grassland mix including species like *Anthoxanthum odoratum* Sweet Vernal-grass, *Cynosurus cristatus* Crested Dog's-tail, *Leucanthemum vulgare* Ox-eye Daisy and *Lotus corniculatus* Common Bird's-foot-trefoil. To the west and east of the dam face the vegetation is different with an area to the west dominated by *Pulicaria dysenterica* Common Fleabane, *Valeriana officinalis* Common Valerian and *Carex pendula* Pendulous Sedge with occasional *Cirsium palustre* Marsh Thistle, and an area to the east dominated by *Carex flacca* Glaucous Sedge. It seems less likely that these areas were part of any planting scheme.

There are tales of experimental planting of a block of *Phragmites australis* Common Reed around one of the ponds which match what is seen today, although whether *Sparganium erectum* Branched Bur-reed, *Typha latifollia* Bulrush,

An aerial view of Devil's Dingle looking north across the site

Typha angustifolia Lesser Bulrush, *Veronica anagallis-aquatica* Blue Water-speedwell, *Schoenoplectus lacustris* Common Club-rush and *Rumex maritimus* Golden Dock were also planted or found their own way to the site is unknown. Small plants found on the exposed ground around the more recent and less vegetated pools, such as *Lythrum portula* Water Purslane, have certainly arrived without deliberate human intervention. The pools themselves do not support much in the way of floating vegetation with just small patches of *Potamogeton pusillus* Lesser Pondweed occurring in the middle and west pools.

An SBS visit to the Dingle in August 2015 recorded 125 and 101 plant species in parts of

Pulicaria dysenterica, *Valeriana officinalis* and *Carex pendula* 'grassland' (photo by Dan Wrench)

two monads and 171 different species in total. Management has definitely been of the light touch variety and the current botanical interest and variety of the site is probably largely due to the differing lengths of time since different parts of the site were worked and that the most recently worked areas have not been top-soiled or seeded. Some of the first plants to develop on these areas are tiny *Chenopodium rubrum* Red Goosefoot and *Puccinellia distans* Reflexed Saltmarsh-grass, followed a couple of years later by carpets of *Medicago lupulina* Black Medick. Other plants perhaps taking advantage of the bare ground include *Spegularia rubra* Sand Spurry, Erodium cicutarium Common Stork's-bill and *Filago minima* Small Cudweed, all found on the track along the dam crest.

Looking southeast across the dam face. (photo by Nigel Jones)

Since 2006 volunteer work parties have cleared scrub on the dam face, coppiced alder on rotation around the east pool and planted a new section of boundary hedge. No formal grazing has taken place on the site but groups of up to fifty fallow deer help slow the march of *Crataegus monogyna* Hawthorn, *Alunus glutinosa* alder, *Betula pendula*, Silver Birch and *Rubus fruticosus agg.* Bramble across the grassland. On the down side they also prevent much ground flora establishing or young trees growing in the wooded margins of the site.

Ironbridge Power Station formally closed at the end of 2015 and, at the same time, transferred to Uniper, a new company created by the division of E.ON, the then owner of Ironbridge. The future of Devil's Dingle also rests with Uniper and remains uncertain.

Most recent pool (west) landscaped in 2010. (photo by Mary Thornton)

Eardington Nature Reserve site profile

Dan Wrench

Eardington Nature Reserve is a 7 hectare former sands and gravels quarry just south of Eardington near Bridgnorth. It ceased operation in 2008 when it was still known as 'Eardington Plant' or 'Eardington Quarry'. Many of the species records for the site still use those names.

The site first came under close attention of the biological recording community when it was selected as one of the 38 quarries to be surveyed as part of the 2006 "Shropshire Quarries: Positive Action for the Future" project. This projects was led by the author and funded by the Aggregates Levy Sustainability Fund. It led to Eardington being surveyed in detail for habitats & vascular plants, lichens, bryophytes and invertebrates.

Later botanical surveys have tended to be partial or carried out as part of public engagement activities so are not as complete. However significant additional finds have been made and it is likely that additional species have found their way to the site as it has matured over the 9 years since the 2006 surveys.

Habitats currently present include:

	Area (ha)
Open Mosaic Habitat on Previously Developed Land (OMHPDL) – A UK Habitat of Principle Importance (formerly known as UK BAP habitat)	2.06
Species-rich grassland - some of Principle Importance status	1.54
3 pools which regularly dry out in summer - the oldest pool is of UK Priority Habitat, and EU Annex I status and two new pools dug in January 2015	0.03
Wetland areas with small ephemeral pools	0.22
Ancient Woodland (Lowland Mixed Deciduous Woodland)	0.78
Secondary woodland, plantation and scrub	2.19

Based on the available survey data the thinly vegetated sandy habitat is home to most of the rare and uncommon species found on the site. However the botanical interest is greatest in the more established grassland and in the ancient woodland near the brook.

The ancient woodland is likely to be a combination of W10 (*Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland) and W8 (*Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland) (Rodwell, 1991). When the surveys were first undertaken in 2006 the identity of the more mature grassland was not determined using the National Vegetation Classification. It is still fairly bare in places and appears to be developing into an unusual grassland type with locally abundant *Erigeron acer* Blue Fleabane and frequent *Clinopodium vulgare* Wild Basil, *Fragaria vesca* Wild Strawberry, *Medicago lupulina* Black Medick and *Centaurium erythraea* Common Centaury. It is certainly not clear what habitat this will mature into but it will be interesting to find out.

In 2014 the author and Ed Andrews from Shropshire Council's Outdoor Recreation Service were successful in an application for SITA Trust funding. The main aim of the project was maintaining 1 hectare of existing OMHPDL and restoring this habitat over an additional 1 hectare where scrub had invaded. This project was to work in conjunction with other works as prescribed in a management plan that took in all the habitats on site.

Before the SITA funding was available the 'Friends of Eardington Nature Reserve' (FENR) established themselves. They set about clearing the scrub from the developing grassland and clearing waste that had been left on site.

A summary of the work to date includes:

- 1 ha of OMHPDL restored though scrub clearance
- 2 new pools created
- 2 artifical Sand Martin nest boxes have been installed. 48 holes per box.
- 6 bird boxes and 6 bat boxes have been installed on site
- Fencing installed to allow grazing of the grassland areas and the main pool
- The grassland has been cut which has kept the birch and bramble at bay
- Woodland rides created and the alder plantation thinned to encourage greater diversity of both canopy and ground layers. Seed from native ground flora species in the ancient woodland have been gathered and spread in the areas of secondary woodland.
- A car park near the entrance has been created
- A former shipping container and tools have been purchased and installed on site to facilitate further management efforts by the FENR

In summary this is a highly diverse site which is developing well with the additional support of FENR and the Outdoor Recreation Service. It is easily up to Local Wildlife Site status and a nomination for this status will be presented to the Local Sites Partnership soon. The site is open to visitors and a car park is now available. Dogs are only allowed on site if on a lead and outside of bird nesting season.

Axiophytes currently thought to be present on site are listed below:

Anacamptis pyramidalis	Pyramidal Orchid
Blackstonia perfoliata	Yellow-wort
Bromopsis ramosa	Hairy Brome
Campanula trachelium	Nettle-leaved Bellflower
Campanula latifolia	Giant Bellflower
Carex pseudocyperus	Cyperus Sedge
Carex strigosa	Thin-spiked Wood-sedge
Carex sylvatica	Wood Sedge
Clinopodium vulgare	Wild Basil
Dactylorhiza praetermissa	Southern Marsh-orchid
Hyacinthoides non-scripta	Bluebell
Lamiastrum galeobdolon	Yellow Archangel
Melica uniflora	Wood Melick
Ophrys apifera	Bee Orchid
Phragmites australis	Common Reed
Pulicaria dysenterica	Common Fleabane
Sherardia arvensis	Field Madder
Succisa pratensis	Devil's-bit Scabious
Tilia cordata	Small-leaved Lime
Veronica montana	Wood Speedwell

Lichens of interest

Caloplaca cerinelloides 1st Shropshire record

Catillaria atomarioides 1st Shropshire record

Verrucaria bulgarica 1st record for West Midlands

A bryophyte survey in 2006 by Mark Lawley found the tiny *Syntrichia amplexa* Clay Screw-moss which was only the fourth British (and European) site for this North American species.

Most of the uncommon fauna are associated with the open sandy habitats, the clean and ephemeral pool and the Ancient Woodland. Interestingly two of the true bug species are associated with the pine trees. A selection of the interesting fauna at Eardington is listed below. This is by no means a comprehensive list.

Campanula trachelium, Nettle-leaved Bellfower on the edge of the meadow area (photo by Dan Wrench)

Little Ringed Plover	*Charadrius dubius*	Schedule 1 species. Seen breeding in 2006 but not since. Green listed
Jack Snipe	*Lymnocryptes minimus*	Amber listed
Yellow Wagtail	*Motacilla flava*	Red listed
Badger	*Meles meles*	UK protected species
Great Crested Newt	*Triturus cristatus*	European Protected Species
Common Toad	*Bufo bufo*	UK Priority Species
Grass-snake	*Natrix natrix*	UK Priority Species
Slow-worm	*Anguis fragilis*	UK Priority Species
Dark Green Fritillary	*Argynnis aglaja*	Local interest
Silver-washed Fritillary	*Argynnis paphia*	Local interest
Brown Argus	*Aricia agestis*	Local interest
The Cinnabar	*Tyria jacobaeae*	UK Priority Species
Glow-worm	*Lampyris noctiluca*	Local interest
Adonis Ladybird	*Hippodamia variegata*	Local interest
A water beetle	*Berosus signaticollis*	1st Shropshire record
A water beetle	*Hydroglyphus geminus*	1st Shropshire record
A water beetle	*Helochares lividis*	1st Shropshire record
A water beetle	*Rhantus suturalis*	1st Shropshire record
Lesne's Earwig	*Forficula lesnei*	Most north westerly population in UK
A true bug	*Dichrooscytus gustavi*	Nationally Notable B
A leafhopper	*Grypotes puncticollis*	Very uncommon
Vernal Colletes	*Colletes cunicularius*	A nationally rare ground nesting bee
A hybotid fly	*Tachydromia smithi*	Only 3rd record for the UK
A hybotid fly	*Tachydromia connexa*	1st record in West Midlands
A hoverfly	*Cheilosia cyanocephala*	Nationally Scarce, 1st Shropshire record
A Solitary bee	*Hylaeus signatus*	Nationally Scarce
A cuckoo bee	*Nomada flavopicta*	Nationally Scarce
A digger wasp	*Cerceris rybyensis*	Restricted
A wasp mimic cranefly	*Nephrotoma crocata*	Very local
A parasitic fly	*Phasia barbifrons*	Local, 1st Shropshire record
A parasitic fly	*Phasia obesa*	Local
Bee Wolf	*Philantus triangulum*	Local
A thick-headed fly	*Thecoptera atra*	Diptera: Thick-headed fly; Local

Reference

Rodwell, J. S. (1991). *British Plant Communities. Volume 2. Mires and heath.* Cambridge University Press.

Poisonous Plants

Ruth Dawes

Plants contain a number of chemical compounds which have toxic effects. These chemicals include alkaloids, glycosides, nitrates, oxalates, phenols, photosensitizing agents, tannins and volatile oils. Many of these substances taste unpleasant and help to protect plants from predators.

Causes of human poisoning by plants include the use of tobacco which contains nicotine alkaloid; children exploring and putting plant parts into their mouths; the increasingly popular foraging for wild food which can lead to misidentification and the taking of substances for mind-altering effect. Animal poisoning is often related to some human element, such as poor pasture management, weed control, garden refuse disposal and inappropriate feeding.

Lily pollen is very poisonous to cats
(photo by Ruth Dawes)

Plant toxins can affect the stomach and the rest of the digestive system, blood cells, central nervous system, heart, and sensitise the skin to ultra violet light. Some parts of plants can be more toxic than others or can become more toxic at certain times of year; concentrations can vary with the stage of growth and growing conditions.

Famous deliberate poisoning cases include the death of Socrates in 399 BC, which is reputed to have been caused by him being made to drink an extract of Hemlock, *Conium maculatum,* which resulted in paralysis and respiratory failure. The Castor Oil plant, *Ricinus communis*, was attributed with the cause of death of Georgi Markov in 1978, a Bulgarian journalist living in Britain. A perforated metal pellet was found embedded in his leg after he had been jabbed with an umbrella at a London bus stop. *Ricin* is known to have highly potent toxins, but castor beans are used in animal feed after suitable heat treatment.

The Aconite referred to in the Harry Potter books is probably *Aconitum*, Monk's-hood, which contains mind-altering neurotoxins. (Witches believed it would give them the power to fly.) The alkaloid content of *Aconitum* varies with soil type and season, in winter the roots are particularly poisonous. Don't plant your Horse-radish next to your Monk's-hood! Remember that the leaves will have died back.

We must bear in mind that some highly poisonous plants, such as *Digitalis*, also serve as very important medicinal plants, thanks to the research of our own Dr William Withering from Wellington and others. *Digitalis* affects the heart, but from this plant came the all-important life saving drugs, digoxin and digitoxin.

Despite the constant presence of many poisonous plants, relatively few casualties are incurred. Man's use of *Nicotiana tabacum,* however, is a different tale. There are some interesting local anecdotes, both of plant poisoning and war time plant collecting when the blockades prevented supplies getting through, more of those next time.

References:

Cooper, M. R., Dauncey, E.A., Johnson, A.W. *Poisonous plants and Fungi*. (2003) Tso. London

Wink, M., Van Wyk, B-E. *Mind-altering and Poisonous Plants of the World*. (2008) Timber Press. London.

Plant Records

Alex Lockton & Sarah Whild

Last year we lost two notable members of the Botanical Society in John Thompson (5/6/1933-Nov. 2015) and John Packham (15/6/1930-11/3/2015). Thompson was a stalwart of nature conservation, having been at one time the Regional Officer of the Nature Conservancy Council, responsible for nature reserves and SSSIs from East Anglia to the Welsh border. After retirement he worked as a consultant, advising English Heritage on the conservation of the flora on ancient walls among other things, and often surveying sites in Shropshire. He was diplomatic and well respected, and held positions advising various organisations on nature conservation, which he always did for the benefit of the wildlife rather than for himself. In his quiet way, he made quite a difference to nature conservation in Shropshire and elsewhere, and he is greatly missed. He has some 5,722 records on the Flora database and he contributed to the recording of animals and fungi as well.

Packham was a different type altogether; something of an old-school academic who was happy to tell you frankly that he considered simply recording plants a trivial activity, if there was no ecological context. He preferred to spend his time on academic research and serious, peer-reviewed papers (and he worked closely with Peter Thomas at Keele on annual beech mast surveys); he was an editor of the Ecological Flora and he helped add a robust scientific element in the vegetation analysis side, which is one of the many strengths of that notable publication. We have compiled some 3,736 records of his, including the notable rediscovery of Wilson's Filmy-fern on the Long Mynd in 1973, and he was a keen supporter of the Botanical Society and its work.

In the last year we have had an exceptional amount of recording, with well over 15,000 records and 880 species in 2015 so far. Notable contributions include John Clayfield's surveys of monads in the south-west of the county. John is the first to seriously tackle systematic monad (1 km square) recording, and it does generate a lot of records. There are some 3,500 monads in the county and each can be expected to have a good 150 species, so there would be half a million records to get complete coverage (considering that the entire database to date is only 550,000 records). A considerable benefit is in getting into little-known corners which have never been surveyed before, and John's visits have turned up some good finds.

Other major contributions include work by Paul Green, who surveyed 20 monads under contract from SEDN, targeting under-recorded areas, and many surveys by Wildlife Trust staff and volunteers, all of which they generously share with the Botanical Society. Some ecological consultants also contribute records, which are always welcome; we hope that we provide good value in return by making available our database online and providing advice on things like which NVC communities can (and which cannot) be found in the county.

In addition to all the current recording, an even bigger effort is going into computerising historical records. We had a fabulous windfall from Philip Oswald, who passed on the notebooks of several notable 19th century botanists such as Arthur Weyman, William Beckwith, Elizabeth Jones, Charlotte Lloyd and William Whitwell. We were also sent the record cards of Rev H.S.T. Richardson, who recorded the vicinity of Hopesay in considerable detail in the 1920s.

Accessing the Flora database is currently problematic, because the NBN Gateway is slow and difficult to use. It also doesn't give all the useful details, such as determiner's name or comments (instead it helpfully gives you codes for species numbers and tells you that the Ordnance Survey grid is the Ordnance Survey grid!) and it doesn't recognise new names such as *Salix* x *fragilis*. However, the SEDN database online is currently being updated and will hopefully give us a more user-friendly and helpful web database which will give everyone full access to the data again.

New records

Sphagnum magellanicum Brid., **Magellanic Bog-moss**, is one of the best indicators of lowland raised mires. It was found this year at Shomere, which is a huge peat bog that was until recently completely

scrubbed over (in fact the name Shomere derives from Shaw Mere, or wooded lake). But in an effort to improve the habitat, Natural England recently clearfelled most of it, and this year Iain Diack found some *S. magellanicum* there. This is the second restoration site where Iain has found it, so it seems that it might be a species that recovers particularly well from this process. It does not like to be covered with water, so that might explain why it turns up in these dried-out bogs.

S. quinquefarium (Lindb. ex Braithw.) Warnst., **Five-ranked Bog-moss**, is another great habitat indicator, favouring humid heaths and woods where it thrives on precipitation rather than base-enriched groundwater. It was until recently thought to be confined to north-facing slopes on the Stiperstones and the Long Mynd, but John Clayfield has now found it on several hills in the south of the county, including Black Hill (SO330791 & 334794) and Hopton Titterhill (SO355755) (both 2015).

Aphanorhegma patens (Hedw.) Lindb., **Spreading Earth-moss**, is a rare moss of bare mud in the drawdown zone around pools – an important habitat that has largely been overlooked in Biodiversity Action Plans and so forth. It turned up this year at Brown Moss (SJ562391, S.L. Pilkington, 6th September 2015) – just the 12th record of it in the county.

Abies alba Mill., **European Silver-fir**, is a forestry tree that appears to be rather overlooked in the county. We do record any trees that are grown in woods (but not in gardens or amenity plantings) so people should record it if they come across it. Paul Green's record of it at England Shelve (SO3795, 10th August 2015) is only the second for the county (the first being by Kate Thorne in 2010).

Trifolium pannonicum Jacq., **Hungarian Clover**: ten plants in a field of lucerne near Edgmond, SJ716194, Godfrey Blunt (conf. Whild), 11th August 2015; first county record of a rare crop contaminant.

Sorbus croceocarpa P.D. Sell, **Orange-berried Whitebeam**, is a naturalised tree in Shropshire, mainly around Ironbridge. A new site was found this year at Harley Bank (SJ6000, S.J. Whild & G. Leel, 22nd April 2015), bringing the number of known sites to six.

Hieracium maculatum Sm., **Spotted Hawkweed**, was seen on an island in a pool at Cwm Cottage, Black Hill (SO3279) by John Clayfield. This is a new neophyte for the county.

Juncus ensifolius Wikstr., **Swordleaf Rush**, was collected from around a pond near the Shrewsbury Canal (SJ514144) by Ian Thompson and Andrew Robinson on 21st June 2015 (det. S.J. Whild); another new neophyte.

Paul Green found some *Carex buchananii* Berggr., **Silver-spiked Sedge**, on the side of the road at Meole Brace (SJ490101, 11th Feb 2015).

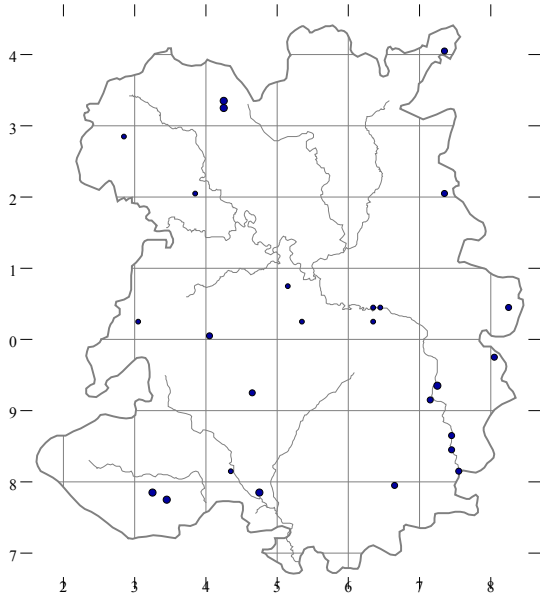
John Clayfield spotted *Triticum durum* Desf. **Pasta Wheat**, in a field of pheasant seed near Holloway Rocks (SO3174). This has not been recorded previously in the county, but few people look at planted crops. However, we do record casual scattered plants and crop volunteers.

An important reinstatement is *Arenaria leptoclados* (Rchb.) Guss., **Slender Sandwort**, which used to be a subspecies of *A. serpyllifolia* and we treated it as such in the 2015 Flora. Technically we should not have, as it is treated as a full species in Stace's 2010 Flora, but in our desire to 'lump' unnecessary taxa we overlooked it. It differs from *serpyllifolia* s.s. in being slightly smaller in various parts. The two appear to have similar habitat requirements but *leptoclados* is rarer in the north and west. If we reinstate it as a full species in the county, it status should be 'widespread' although there are comparatively few records.

Happily there is a 'secret' field in the database where we store unused scientific names so it is easy enough to reinstate any deleted species like this. The first county record remains Serjeantson's 1877 specimen at SHY from Acton Burnell, as stated in the Flora. With a couple of new records from John Clayfield this year, we now have 30 records for Shropshire, as follows, and people might like to look out for it more carefully in future or see if they have further records in their notebooks that could be resurrected.

Records of *Arenaria leptoclados* to date

1 Acton Burnell, SJ5302, 1877, Serjeantson, Rev R.M., SHY
2 Penylan Lane, SJ2828, 1901, Whitwell, Mr W.
3 Buildwas Mill, SJ6304, 1901, Painter, Rev W.H.
4 Farley Dingle, SJ6302, 19 August 1901, Painter, Rev W.H., 'growing in profusion upon railway ballast.'
5 Buildwas, SJ6304, 1909, Melvill, Dr J.C.
6 Buildwas Sand Quarry, SJ6404, 16 June 1954,



Rutter, Mr E.M.

7 Boreton Bank, SJ5107, 23 June 1954 (&19 July 1955), Rutter, Mr E.M. & Meikle, Mr R.D.

8 Lower Wood, Worthen, SJ3002, 05 August 1954, Rutter, Mr E.M. 'in quarries at Lower Wood.'

9 Boreton Bank, SJ5107, 19 July 1955, Rutter, Mr E.M.

10 Stokesay, SO4381, 1956, Bigwood, Miss M.H.

11 Hopton Hill, SJ3820, 29 August 1956, Rutter, Mr E.M.

12 Albrighton, SJ820045, 1976, Fowler, Mr B.R., 'in fine clinker of railway goods yard.'

13 Pipe Gate, SJ739409, July 1977, Fowler, Mr B.R., 'on disused railway ballast.'

14 Chetwynd Park, SJ735206, August 1977, Fowler, Mr B.R., 'on sandstone wall.'

15 Rudge, SO803978, 28 May 1978, Fowler, Mr B.R., 'local on open sandy knoll.'

16 Detton, SO664797, 1979, Heywood-Waddington, Mrs E., 'five plants by disused railway line.'

17 & 18. Severn Valley Railway at Severn Lodge, SO746841, 10 June 1979 (& SO752816, 17 June 1979), Thompson, Mr W.A., 'thought to be widespread on cinders and ballast of Severn Valley Railway (with *A. serpyllifolia*), but only noted with confidence to date on old sidings beneath Severn Lodge and North East of Highley.'

19 Cothercott Hill, SJ407002, 1980, Fowler, Mr B.R., 'in moss over concrete blocks.'

20 Hampton Loade Station, SO744862, 13 April 1980, Thompson, Mr W.A., 'several plants on cinders by the Severn Valley Railway just south of Hampton Loade Station.'

21 Hazler Hill, SO462923, May 1981, Perring, Dr F.H. & Davidson, Ms H.M., 'in small quarry, north side of Hazler Hill and east of footpath from Church Stretton.'

22 Severn Valley Country Park, SO746841, 19 June 1981, Thompson, Mr W.A., 'open habitat on slaggy waste on an old colliery siding.'

23 Severn Valley Railway at Knowlesands, SO718915, 02 June 1982, Heywood-Waddington, Mrs E. & Thompson, Mr W.A., 'in quantity on ash by the railway track.'

24 Bridgnorth Cemetery, SO725935, February 1993, Whild, Dr S.J.

25 Wood Lane Gravel Pit, SJ423327, 12 September 1997, Whild, Dr S.J.

26 Colemere, SJ429331, 12 July 2008, Bell, Mr K.K., 'On the hedgebank of a lane west of Colemere.'

27 Walton, Onibury, SO47037822, 18 Aug 2009, Green, Mr P.R. & Green, Mr I.P., 'on the side of the railway.'

28 Black Hill, SO3278, 2015, Clayfield, Mr J.,

29 Great Hagley Dingle, SO342772, 2015, Clayfield, Mr J.

30 Halford Quarry, SO447836, 2015, Clayfield, Mr J.

The following have made records in 2015 – thank you! (Not all records have been compiled yet, so this is not the final list.)

Alston, Ms D.	59	Evans, Ms R.	10	Knight, Mr D.	1	Singleton, Mrs K.	1,305
Andrew, Mr A.	252	Gardner, Ms S.	304	Langton, Mr J.	248	Smith, Mr W.	1
Ashton, Mr M.	1	Gillard, Ms R.	570	Law, Mr N.J.	32	Spence, Mrs S.	1
Aspey, Mr N.	8	Godfrey, Sqn Ldr M.F.	6	Leel, Mr G.	527	Stace, Prof C.A.	1
Blunt, Mr A.G.	9	Gomersall, Mrs F.J.	564	Lewis, Mr S.	5	Swindells, Mrs S.	34
Boardman, Mr P.	1	Green, Mr P.	40	Lockton, Mr A.J.	542	Thompson, Mr I.S.	2
Box, Dr J.D.	5	Green, Mr P.R.	3,323	Lyden, Mr J.	1	Thorne, Dr A.K.	1
Chater, Mr A.O.	280	Groom, Dr Q.J.	239	Mackirdy, Ms K.	64	Townsend, Ms S.	1
Clayfield, Mr J.	5,636	Handley, Mr J.	712	McCann, Ms A.	2	Uff, Dr C.	1
Cousins, Mrs M.	279	Harris, Ms M.	227	Meade, Mr R.	65	Walker, Mr C.	669
Cutts, Mr A.	1	Hendey, Ms J.	7	Mileto, Mr R.	2	Waller, Mr M.	5
Dawes, Mr A.P.	6	Hogarth, Mr C.	2	Parker, Mrs P.	1	Whild, Dr S.J.	591
Dawes, Mrs R.A.	222	Irving, Ms R.	407	Pilkington, Ms S.L.	3	Wiggins, Mr T.	80
Diack, Mr I.	1	Ison, Mr J.J.	100	Poynton, Mr D.	1	Williams, Ms P.	36
Duffell, Mr M.S.	55	Jones, Mr A.	2	Robinson, Mr A.	976	Wilson, Ms G.	1
Edmonds, Mrs S.	185	Jones, Mr K.	1	Rowe, Mr R.	313	Wrench, Mr D.H.	630
Edmondson, Mr W.	1	Jones, Mr N.P.	1	Shanklin, Dr J.	218	Wysome, Mrs P.J.	92

The Mysteries of Mistletoe

Peta Sams

At the group's Winter meeting in December Dr Jonathan Briggs gave a highly entertaining and informative talk about this plant whose traditions go back to the time of the Romans. It has a strong association with Christmas and New Year yet is still often thought of as a pagan plant and banned from churches.

Despite there being four to six species of mistletoe in Europe - some of which grow on evergreens - there is only one in the UK - *Viscum album* - and that is only ever found on deciduous trees. The south west Midlands is a favoured area in the UK and this is thought to be due to climate rather than the common, but incorrect, assumption of its association with apple growing areas. Apple (but not pear), lime, poplar and hawthorn are common hosts. Mistletoe on oak is rare in the UK but tradition has it that it is somehow more special. It is our only white berried native plant. It flowers in spring so is therefore dependent on early insects for pollination. The seeds also germinate in spring - having been dispersed by birds over the winter. Only *Viscum album* has the distinctive forked branches and paired symmetrical evergreen leaves. Other mistletoes have coloured berries which seems decidedly odd to me having grown up with our native plant. Only the female plants bear berries - these are at the fork of the branches - and male plants tend to be more yellow than the female. Mistletoe (meaning - dun twig) has also been known as The Golden Bough since time immemorial and was traditionally cut by men in white robes with a golden sickle.

We heard that there is currently plenty of mistletoe in old orchards but often these are not being well managed. So, it is this that currently produces the good crops to be sold at the annual Tenbury Christmas mistletoe market but ultimately this supply will decline as the trees die. The plant does affect the development of the branches of the host that it establishes itself on and although mistletoe performs its own photosynthesis it does require the host to provide a good supply of water which can harm the host in dry seasons.

The druids revere mistletoe and bless the crop before sales begin at mistletoe fairs. Mistletoe, when cut traditionally is caught in large sheets (the modern era of fitted sheets has made it easier to catch!) to stop it falling to the ground when, it is alleged, it loses its magical properties. So what about the mistletoe lying on the ground ready for sale? Does it regain its magical properties when lifted from the ground? What about taking it home in the car? All hard questions for an audience lulled by tea and cake on a dark Saturday afternoon to consider.

Then there is the issue of propagation. Mistle thrushes (*Turdus viscivorus*) - so called because of their association with mistletoe although most of these birds never see the plant - are, it turns out not good propagators of the plant. Blackcaps (*Sylvia atricapilla*), who come from Europe to overwinter in the UK, are far better at depositing seed in the right place and hence there is an increased chance of successful germination. Blackcaps separate the seed from the berry before eating it and then wipe their beaks on a suitable branch to get rid of it and hence it is in just the right place for germination. Thrushes however ingest the whole berry, the seed comes out the end and it is a hit and miss affair as to where it lands. So germination rates are far lower. Jonathan's portrayal of these different birds' handling of mistletoe berries will ensure that I don't forget this information! There were a few "Don't try this at home moments" as he separated the seed from the sticky berry but fortunately none were swallowed.

This is only a very brief summary of some of the topics covered in Jonathan's talk so do have a look at his website at http://www.mistletoe.org.uk for more information about this fascinating plant and its history and traditions.

The Genus *Sphagnum* – a guide part 7: *Sphagnum fimbratum* and *S. girgensohnii*

Martin Godfrey

Introduction

Over the past year or so I have had a number of records and specimens sent to me as *Sphagnum girgensohnii* which, on examination, have proved to be *S. fimbratum*. This short article will, I hope, clarify field ID features to enable you to identify plants with a lens.

What to look for

Sphagnum fimbratum is common and abundant and is one of those few *Sphagnum* species which most people identify by a "jizz" feature. The stem leaves of this species have broad rather tatty (fringed or fimbrate) tips so when you remove the capitulum and look at the broken end of the stem with a lens you can see these leaves forming a conspicuous ruff around the stem – a characteristic which is exhibited by no other species. That said, although they are a totally different shape, the stem leaves of the rather scarcer *S. girgensohnii* also have fimbrate tips and I suspect that this, combined with a bit of optimism, is leading to the mistaken IDs.

So how are we going to tell them apart? Both species look rather similar, being smallish and slender and always green – Fig. 1. They also have rather similar ecological requirements, being minerotrophic and shade tolerant, so you tend to find them growing in loose hummocks or mats in mineral rich conditions – often in wet woods. Both have a "big bud" in the centre of the capitulum, Fig 2, but this is usually more conspicuous in *S. fimbratum*.

Fig 1.

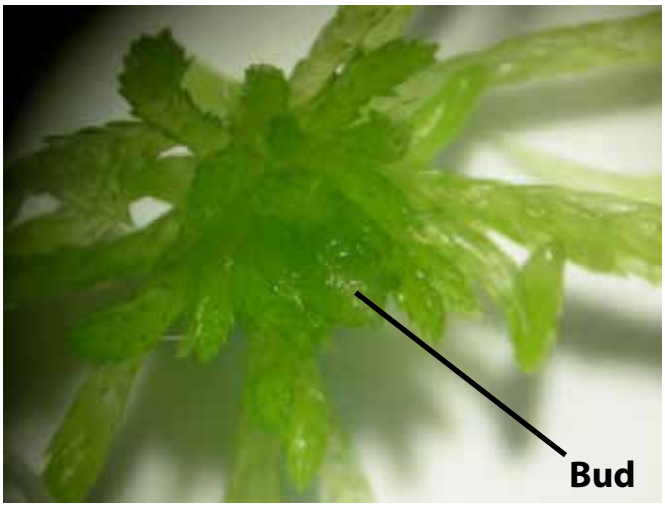


Fig 2.

There are two good features which will enable you to tell them apart. First look at the fascicle structure. In *S. fimbratum* the fascicles are well spaced down the stem and usually consist of 3-5 branches, 2-3 of which are divergent and the others pendant. In *S. girgensohnii* on the other hand the fascicles are usually more crowded and consist of 3 branches, 2 of which are divergent and one pendant. The other feature is the leaf shape which is totally different in the two species. You should be able to see this quite clearly with a lens

Fig 3. *Sphagnum fimbratum* stem leaf

Fig. 4. *Sphagnum girgensohnii* stem leaf.

although for convenience I illustrate this article with photomicrographs.

In *S. fimbratum* the tip of the leaf is much wider than the base giving a very broad band of fringing which en-mass shows as the ruff at the top of the stem, Fig. 3.

In *S. girgensohnii* on the other hand the stem leaf tip is narrower than the base so, notwithstanding the fact that it is fimbrate, you do not get the ruff effect seen in the previous species, Fig 4.

Checking your ID

As always if you find a confusing or difficult plant get a referee to have a look at it – *Sphagnum girgensohnii* is rare in the county and has not been seen for some time so in any event you would need to support a record with a specimen.

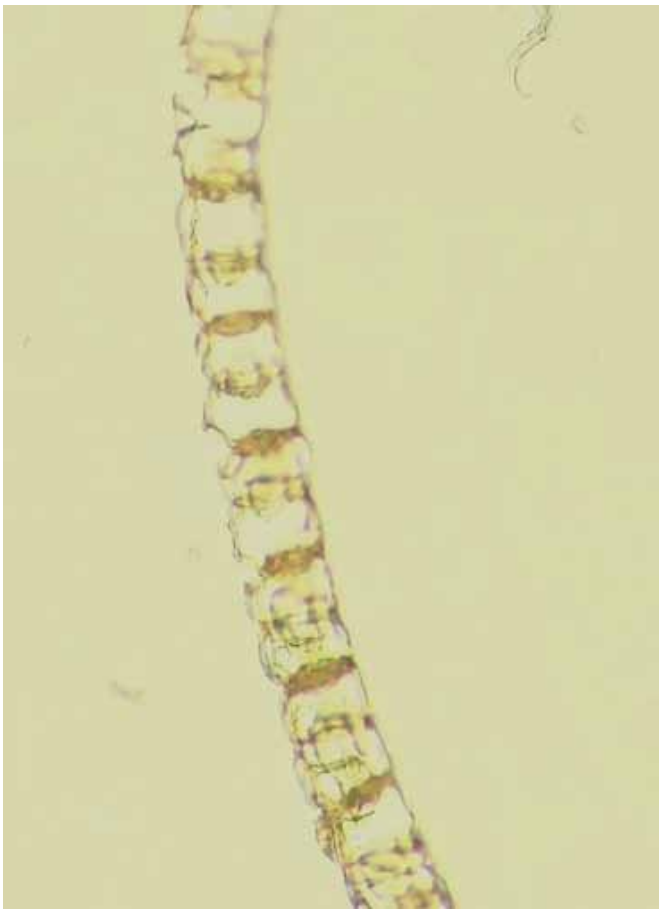
Sphagnum microscopy workshop – 14 November 2015

Martin Godfrey

In my last *Sphagnum* article, on microscopy, I said that I would hold an associated workshop to demonstrate and practice techniques. I held the workshop on 14 November at Preston Montford Field Centre with the support of the FSC's "Tomorrow's Biodiversity" project.

Fifteen people attended the workshop where we had a full day of uninterrupted *Sphagnum*! After explanations of the workings of both binocular and compound microscopes we spent some time practicing dissection of plants and the selection of parts to make the basic microscope slides needed to see features needed for identification. Later students practiced cutting sections of both stems and leaves, not as difficult as it sounds with a sharp blade and the right technique, and making slides from the results – one or two brave souls even had a go at the rather more tricky procedure of making slides of the stem epidermis.

By the end of the day we had covered plenty of ground and, I think, people had enjoyed themselves and were hopefully motivated to improve their ID skills.



Sphagnum magellanicum leaf section

Web based botanical resources part 2

John Handley

WARNING: if you have access to the internet whilst reading this article, hours will disappear.

Thank you for the feedback prompted from the previous article on mapping. David Pearman offered http://www.cucaera.co.uk/grp this provides maps with greater flexibility regarding time-frames. John Tucker provides maps on the Historical Ornithology of Shropshire website, http://www.lanius.org.uk/sos/sos-shropshirete.html, containing organised lists of the tetrads in Shropshire as well as place names, which might be a good place to start standardizing site names for recording groups in Shropshire? Mark Duffell suggested an interesting site, https://map.what3words.com/, this website produces a unique combination of just 3 words that identifies a 3m x 3m square, anywhere on the planet. This provides an easy way to share a specific location with somebody, particularly if they are not accustomed to using grid references. Dan Wrench also pointed out the discovery that the StreetView section of Google Maps (where you drag and drop the little peg man) also has the capacity to look at pictures taken at different times, if you click on the date within the box at the top left hand-side of the image.

There are some wonderful websites that have been compiled by remarkably generous people keen to share their expertise. The list below is incomplete and we would be delighted to hear from readers who would like to share their favourite sites.

The Botanical Society of Britain and Ireland webpage contains an identification section: http://bsbi.org.uk/identification.html this contains sections from edition 2 of the Plant Crib, with some updated sections from the planned Plant Crib 3. An amazing online resource focusing on difficult groups. This page also features links to Quentin Grooms multi-access key for beginners. Mick Crawley's keys to snowdrop's and daffodils as well as Jeremy Robert's webpage on *Trichophorum* and *Eleocharis* and Alan Silverside's notes on eyebrights, though this forms a fraction of Alan's amazing website: http://www.bioref.lastdragon.org/index2.html that I'd encourage anyone to explore. There is also a link to Andy Amphlett's key to Balsam Poplars.

http://www.s231645534.websitehome.co.uk/ken's%20Keys.htm, Ken Adams coordinates the Essex Botany and Mycology groups and produces a wonderful identification resource called Kens Keys. This is wonderfully illustrated and the keys are easy to understand and well-constructed.

http://wildflowerfinder.org.uk/ is a website containing a wealth of information that can be particularly useful for identification purposes. Searches can be accessed from different areas of the site and there's lots of peripheral information, well worth exploring.

http://www.e-journals.org/botany/ contains links to journals in which articles concerning plant biology are published. The sites will almost always have a Tables of Contents available free and may frequently have selected articles, or the entire text online. Some sites are free; others require registration or paid subscriptions. Many journals have free "trial" periods, or bundle online with print subscriptions, check the site to test availability.

http://agricola.nal.usda.gov/ is a database of scientific literature created by the United States Department of Agriculture's National Agricultural Library.

http://www.digitalbookindex.com/_search/search010biolbotanya.asp contains links to online resources, books and documents that are old or out of print.

http://fernid.info/ferns/search is a website focusing solely on British members of the Phylum Pteridophyta. There is a multi-access key that is easy to operate through drop-down boxes.

http://www.winternet.com/~chuckg/dictionary.html is an easy site to use containing a dictionary of botanical epithets.

http://www.people.fas.harvard.edu/~brach/IDB/botany.html is entitled the Internet Directory of Botany. This site is an index to botanical information available on the Internet, compiled by Anthony R. Brach. It started as a personal bookmark list of botanical sites and is now a large resource for the botanical community.

http://plantnetwork.org/directory/ is the plant collections network of Britain and Ireland was published in 1999. This provides an interactive map of the Botanical Collections in Britain and Ireland, information on 136 Botanical Collections. The map provides a geographical link to these

Gardens. Searches can be defined by family and genus.

http://www.bgci.org/plant_search.php/ is a global database of living plant, seed and tissue collections.

http://epic.kew.org/index.htm is Kew's searchable database containing digitised information about plants. It can be used to pinpoint information of interest, bibliographies, nomenclatures and checklists, publications and taxonomic works, as well as links to information resources provided by external organisations.

http://delta-intkey.com/angio/index.htm provides descriptions, illustrations, interactive identification, and information retrieval from DELTA databases.

http://www.bioimages.org.uk/ offers a database of images, the search facility is provided by Google. http://www.floralimages.co.uk/ provides an alternative site containing excellent images.

If you are utterly at a loss then you can post in iSpot and someone will hopefully provide identification for you: http://www.ispotnature.org/communities/uk-and-ireland

2016 Field Meetings

Dan Wrench

Saturday 21st May. Ragleth Hill, near Little Stretton. Meet in the layby of the A49 at 10 am. The walk will be quite steep and pass through woodland and onto acid grassland and wetlands at the top of Ragleth Hill. Good plants to re-find include *Alchemilla xanthochlora*, Intermediate Lady's-mantle; *Jasione montana*, Sheep's-bit; *Carex pulicaris* Flea Sedge; and *Scleranthus annuus* Annual Knawel. Please contact Mags CousinsTel. 01694 722215, Mobile: 0779 1505641, email: mags@bagbatch.co.uk

Saturday 18th June. Haughmond Hill. Meet at the main car park SJ545147 at 10 am. Car parking will cost £1 for the day. There is plenty to look for but we will be taking a look at some of the recently cleared areas which can be rather wet under foot. Look out for Chaffweed, *Centunculus minimus* L., Wood Small-reed, *Calamagrostis epigejos* (L.) Roth and Lesser Skullcap, *Scutellaria minor* Huds. There is a cafe and toilet facilities at the main car park and much of the route is on good paths with few, shallow inclines. For further details contact Dan Wrench dan_wrench@yahoo.com; 0771 839 1794

Saturday 2nd July. Blackbridge and / or Dolgoch. Meet at SJ277241 in the layby off the A495 next to Llynclys Common. We will visit Dolgoch Quarry first and survey the calcareous grassland on the spoil heaps and quarry floor. In the afternoon we will go on to Blackbridge Quarry, a hidden gem where we'll record the rich limestone flora on the cliffs and quarry bottom. For further details contact fionag@shropshirewildlifetrust.org.uk mobile: 07506 120019

Saturday 9th July. The Severn Valley Country Park. The park is based near Alveley, nine miles south of Bridgnorth off the A442, grid ref SO753840. Car parking is available at a charge of £1.70 a day, between 10 am and 4 pm. The route will have some moderate hills, uneven under foot but with good footpaths and toilet and café facilities available throughout the day. We will be looking at lots of examples of the Apiaceae (carrot family), teasing out the characteristics that distinguish the genera and enabling people to become confident in their identification to species. Some additional samples will be bought along by John Handley and anybody attending is welcome to bring samples of their own for the group to look at. It's hopefully going to be a lovely day so sun hats and sun screen, boots and bottles of water, but in the eventuality of rain a light mac should be sufficient as the café isn't too far away. Meet at 10 am. May go on until about 4 pm but feel free to leave earlier if needed. Contact John on 0797 709 5124 or johnhandley11@gmail.com

Saturday 20th August. Windmill Hill and Blakeway Hollow. We will meet at 10 am in a small car park near Windmill Hill (on the left when leaving Much Wenlock just past William Brooks School at SJ 6236 0090). Plants to look out for include *Filipendula vulgaris* Dropwort, *Ophrys apifera* Bee Orchid, *Atropa belladonna* Deadly Nightshade and many others. If we have time we will move to the National Trust Car Park just off the Stretton Road (B4371) at SO 6129 9965 from where we can visit Blakeway Hollow and try to re-find *Nepeta cataria* Cat-mint. Contact Penny Wysome: pennywysome@yahoo.com, or Tel. 01952 242617

Sunday 11th September. Millichope Park. Meet in the stable yard at Millichope Hall at 10 am where we will look for *Cystopteris fragilis* Brittle Bladder-fern, *Primula* x *polyantha* False Oxlip, and *Trifolium hybridum* Alsike Clover which haven't been recorded for 37 year. Contact Dan Wrench 0771 8391794 dan_wrench@yahoo.com

The Grasses Part 4.2 – the fourth and final group of the clearly-branched Panicles

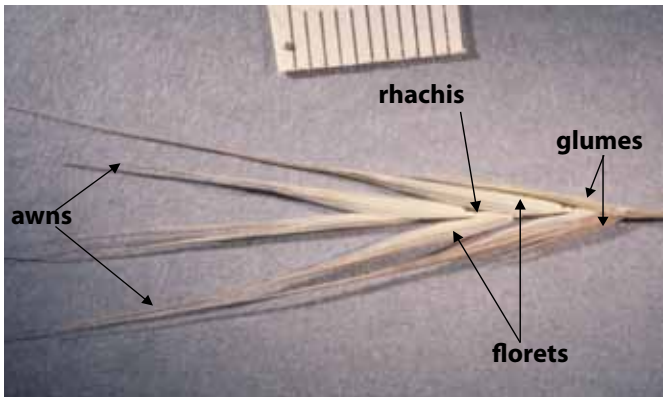
Ian Trueman

In the Autumn 2014 issue of the Newsletter, four groups of grasses with clearly-branched panicles were distinguished, based on the prominence of the glumes and the number of flowers in the basic unit of the grass inflorescence, the spikelet

Here we are dealing with the last of the four groups, in which

- the glumes are both shorter than the florets, exposing the florets to view
- the spikelet has many florets

In these grasses, the spikelets are typically flattened structures in which the florets are in two symmetrical rows one on each side of a hair-like axis or *rhachis*. If the florets are awned, the awn is attached at or near the tip of the lemma, and is ± straight.



Spikelet of Barren-brome *Anisantha sterilis* (scale in mm)

This is a very common form of spikelet in grasses. The same type of spikelet can also be seen in the grasses in which the inflorescence is an unbranched spike (e.g. in the Ryegrasses *Lolium* spp. and in Couch *Elytrigia repens*) or a spike-like panicle (e.g. in Crested Dog's-tail *Cynosurus cristatus*).

There are about 50 species of panicle-forming grasses in this group! Some are very distinctive:

Fern-grass *Catapodium rigidum* This little (typically 15 cm or less tall at flowering) winter annual will be found fruiting in spring and early summer in infertile, droughty places such as quarry ledges, spoil tips, tops of garden walls, pavements and stone steps. The panicle branches in one plane, with shortly-stalked clusters of spikelets at each node, all facing to one side of the panicle. Each spikelet is long and narrow with as many as ten florets. There are no awns. The whole is rather stiff and rigid until it breaks up at maturity. We dealt with its salt-tolerant relative Sea Fern-grass *Catapodium marinum* with the spikes, since its inflorescence is essentially unbranched.

Water Whorl-grass *Catabrosa aquatica* Usually less than 30 cm tall, this uncommon grass produces a 10-20 cm purplish panicle of densely-clustered whorls of branches spaced at fairly wide intervals. The distinctive spikelet typically consists of only two blunt florets, but the two glumes are much shorter (lens), differentiating it from the Bents *Agrostis* spp. with which it could be confused. It is found especially in open mud by ponds and in slow-running ditches.

Mountain Melick *Melica nutans* Found in the margins of a very few of our old, base-rich woods, this close relative of the Wood Melick has similar awnless chunky spikelets but arranged on short stalks in an otherwise almost (but not quite) unbranched, nodding raceme-like inflorescence. Two to three florets project beyond the glumes.

Quaking-grasses *Briza* spp. The utterly distinctive, laterally-flattened many-flowered spikelets of the Common Quaking-grass *Briza media*, borne drooping in panicles and quaking in the wind, are a pleasing feature of many base-rich habitats from dry limestone through old hay meadows to base-flushed mires. Similar but much larger (1.5 – 2.5 cm long) spikelets are seen in the annual garden escape Greater Quaking-grass *Briza maxima*.

Common Reed *Phragmites communis* This giant reedswamp-forming grass is unmistakable, but its ligule, where the leaf sheath meets the leaf blade, is of hairs, distinguishing it from the other reedswamp-forming grasses, Reed canary-grass *Phalaris arundinacea* and Reed Sweet-grass *Glyceria maxima,* which have membranous ligules. The inflorescence forms late and the spikelet looks 1-flowered until early Autumn, when it opens to

reveal a group of long-pointed florets mixed with long, silky hairs.

Purple Moor-grass *Molinia caerulea* Like *Phragmites*, this grass also has a ligule reduced to a fringe of hairs. It forms dense tussocks surrounded by last years dead, whitish leaves and produces beautiful spreading sprays of rather narrow panicles in summer. It is associated with a wide range of heath and mire habitats and is an annoying coloniser of insufficiently-wet mires. The medium-sized (c. 0.5 cm) spikelet has 3 or 4 rather loosely-arranged, pointed but not awned, florets.

Cock's-foot *Dactylis glomerata* This ubiquitous coarse grass tends to form untidy tussocks in un- or under-grazed grassland and other grassy places, especially where the soil is fertile. The whitish non-flowering shoots are broad and curiously flattened, generating strongly-folded leaf blades which are 1 cm. or more wide when flattened out. The tip of the panicle is lobed but rather spike-like, but there are a few long bare branches below, each producing dense, lobed masses of spikelets above. This form is not seen elsewhere, except it is sometimes approached in Reed Canary-grass *Phalaris arundinacea,* which is quite different vegetatively and has one-flowered spikelets. The spikelet in Cock's-foot is 0.5 - 1 cm long, wedge-shaped and the lemmas of the florets are sharply keeled on their backs and drawn out into sharp points or short awns.

The rest of the grasses with panicles in which the spikelets are many flowered and the glumes are both shorter than the florets comprises of four genera groups, some with various satellites and segregates. They may be distinguished critically as in the key below:

Meadow-grasses *Poa* spp.

The spikelets have a very characteristic sharp-edged oval outline because the backs of the lemmas are sharply keeled and there is a complete lack of awns, but in most species the spikelet is small (often less than 0.5 cm long) and there may not be many flowers in the spikelet, so that, especially early in flowering, you might need to look with a lens to be sure it is a *Poa* rather than an *Agrostis.* The inflorescence is usually a neat cone, tapering to a point above, with many branches and many

Spikelet of *Poa humilis* x 8

Semi-diagnostic key to main groups of grasses with panicles of many-flowered spikelets and glumes both shorter than the florets

1.	Ovary surmounted by a lobed, fleshy terminal appendage, the styles arising from beneath it	**The Bromes** *Bromus*, *Bromopsis*, *Anisantha* and *Ceratochloa*
1.	Ovary hairy or not but without an appendage, styles terminal on the ovary	2

2.	Leaf sheaths cylindrical, lemmas awnless	**The Sweet-grasses** *Glyceria* spp.
2.	Leaf sheaths open, their margins overlapping, if fused almost to the top then lemmas awned at or near the tip	3.

3.	Lemmas rounded on the back, at least below..	**The Fescues** *Festuca* spp., *Schedonorus* spp. *Vulpia* spp, (plus *Puccinellia*)
3.	Lemmas keeled throughout	**The Meadow-grasses** Poa spp.

spikelets. The leaf-sheaths are keeled and flattened and the leaf blades keeled with a characteristic tip shaped like the prow of a boat.

Meadow-grasses are found in most habitats; several species such as Rough Meadow-grass *Poa trivialis* and Annual Meadow-grass *Poa annua* are almost ubiquitous and seven other species recognised in Stace have been recorded in Shropshire: Broad-leaved Meadow-grass *P. chaixii*; Flattened M-g *P. compressa*; Spreading M-g *P. humilis*; Wood M-g *P. nemoralis*, Swamp M-g *P. palustris*; and Smooth M-g *P. pratensis.*

Sweet-grasses *Glyceria* spp.

Aquatic or marsh perennials with medium to large (0.5-3.5 cm. long), often very numerous-flowered spikelets, in which the lemmas are rounded on the back, fairly blunt at the tips and without awns. The leaf-sheaths are fused into a tube and are often keeled and the broad leaf-blades quite sharply folded; the foliage is luscious and eagerly grazed.

Reed Sweet Grass *Glyceria maxima* is one of our major reedswamp-forming species in the margins of rivers and canals, particularly on richly-fertile substrates. Three related species and one hybrid of lesser stature are widely distributed in wetlands: Floating Sweet-grass *Glyceria fluitans*; Small S-g *G. declinata*; Plicate S-g *G. notata* and Hybrid S-g *G.* x *pedicellata.*

Spikelet of *Glyceria plicata* x 2.5

Fescues *Festuca sensu lato*

In Stace these are segregated into three genera. The annual species are placed in a separate genus ***Vulpia*** in which the relatively narrow lemmas narrow imperceptibly into awns longer than the rest of the lemma. In Shropshire in this group we have Squirreltail Fescue *Vulpia bromoides* and Rat's-tail Fescue *V. myuros*.

Vulpia and *Festuca* species mostly have narrow leaves which are habitually folded up into bristles almost cylindrical in section. The genus ***Festuca***

Spikelet of *Festuca rubra* x 5

in its sense in Stace consists mainly of medium-sized to small perennial bristle-leaved grasses with panicles which are much less branched than in Meadow-grasses and with larger spikelets, and florets with pointed and usually terminally-awned lemmas. The key species are Red Fescue *Festuca rubra* and Sheep's-fescue *Festuca ovina* which are important constituents of semi-natural grasslands. The other species and well-marked subspecies in Shropshire are Wood Fescue *Festuca altissima* (a rare, flat-leaved species); *F. rubra subsp. commutata*; *F. rubra subsp. megastachys*; Confused Fescue *F. lemanii*; Hard Fescue *F. brevipila* and Fine-leaved Sheep's-fescue *F. filiformis*.

Most of the flat-leaved fescues have prominent pointed auricles (moustache-like outgrowths either side of the leaf ligule). These have been segregated into the genus ***Schedonorus.*** In Shropshire we have Tall Fescue *Schedonorus arundinaceus*; Giant Fescue *S. giganteus*; and Meadow Fescue *S. pratensis*

Keying out with the fescue genera, but not so closely related, is ***Puccinellia***, a genus of saltmarsh grasses which are represented in Shropshire by Reflexed Saltmarsh-grass *Puccinellia distans*, found mainly by roadsides and on (presumably saline) spoil tips. The spikelet is small (c. 0.5 mm), the

lemmas rounded on the back unlike in *Poa* and unlike in *Festuca* the lemma has a blunt, unawned tip.

The Bromes *Bromus sensu lato*

These have often been placed in the single genus ***Bromus***, united by the mysterious appendage on top of the ovary with the stigmas arising beneath it, which is visible from first flowering all the way to fruiting (lens, or preferably stereo microscope, but worth looking for if you are not sure whether you have a Brome or a Fescue!). This feature is only shared by the False-bromes *Brachypodium* and in a small way by the Wheats and Barleys. Otherwise the Bromes resemble the larger, flat-leaved, Fescues, but in the Bromes the leaf sheaths are usually hairy and their awns (which all ours have) are usually clearly subterminal on the lemmas which are often prolonged beyond into two small points. The spikelets are always fairly (or very) large.

Most modern treatments segregate them into four genera. The large, broad-leaved perennials form genus ***Bromopsis***, with three species in woodland and calcareous grassland in Shropshire. Hairy-brome *Bromopsis ramosa*; Lesser Hairy-brome *Bromopsis benekenii* and Upright Brome *Bromopsis erecta.*

The introduced **American Bromes *Ceratochloa*** are short-lived perennials at most, and recognisable by their large awned spikelets which are strongly compressed with the lemmas keeled as in *Poa* (but awned and much larger: 3 cm long plus awns). Two have been described from Shropshire and one, California Brome *Bromus carinatus* seems to be increasing. Rescue Brome *Ceratochloa cathartica* is uncommon.

The rest are all annuals. The **Barren-bromes *Anisantha*** have huge parallel-sided spikelets, gaping at maturity, with awns longer than the lemmas. The genus includes that terror of selective-weedkiller-using farmers Barren-brome *Anisantha sterilis* and, with even larger spikelets, the uncommon Great Brome *Anisantha diandra.*

The **Bromes, *Bromus*** in the strict sense, have more moderately large spikelets, ovate to lanceolate in shape and the awns are shorter than or about as long as the lemmas. The Soft-brome *Bromus hordeaceus*, common especially in disturbed or trampled ground, has softly hairy spikelets. Most of the rest are uncommon or rare and mostly have glabrous spikelets: they are Meadow Brome *Bromus commutatus,* Lesser Soft-brome *Bromus hordeaceus subsp. pseudothominei*; Smooth Brome *Bromus racemosus* and Rye Brome *Bromus secalinus.*

Spikelet of *Bromus secalinus* x2

References

Consult the following for further information, illustrations etc.

Cope, T. & Gray, A (2009) Grasses of the British Isles. BSBI

Hubbard, C.E. (1984) Grasses ed. 3..Penguin Books

Stace, C. (2010) New Flora of the British Isles ed 3. Cambridge

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